

Title: CHALCONES WITH POTENTIAL ACTIVITY AGAINST GRAM POSITIVE BACTERIA

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Summary:

Bacterial resistance has been one of the major public health problems, especially with the increasing incidence of multi-resistant bacteria in nosocomial infections. In this context, the search for new antimicrobial agents from synthetic compounds is increasingly important. The chalcones have been reported as an interesting source to obtain new active molecules since they present a broad spectrum of biological activities and have the advantage of synthetic versatility. Thus, the aim of this study was to evaluate the antibacterial potential of sixteen Chalcones against four samples of Gram positive bacteria (*Streptococcus agalactiae* ATCC 13813, *Staphylococcus aureus* ATCC 29231, *Staphylococcus epidermidis* ATCC 12228, and *Staphylococcus saprophyticus* ATCC 15305). For the antibacterial tests, it was carried out the determination of the Minimum Inhibitory Concentration (MIC) by broth microdilution method and the evaluation of the Minimum Bactericidal Concentration (MBC) by agar microdilution. The compounds were tested in concentrations ranging from 1000µg/mL to 3.9µg/mL. Streptomycin and Dimethylsulfoxide (diluent) were included in the assays as positive and negative controls, respectively. *S. aureus* showed the best results, being sensitive to six compounds with MIC values ranging from 10µg/mL to 550µg/mL. It was observed that the compound LZ46 showed bacteriostatic and bactericidal activity against *S. aureus*, *S. epidermidis* and *S. saprophyticus*, with MIC values between 19.5µg/mL and 40µg/mL, and MBC values from 80µg/mL and 625µg/mL. *S. epidermidis* and *S. saprophyticus* were susceptible to four chalcones. Synthetic compounds derived from chalcones showed promising antibacterial activity at low concentrations, indicating the possibility of their pharmacological use to treat bacterial infections.

Keywords: chalcones, Gram positive bacteria, antibacterial.

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